AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Original) An output regulator to convert an input voltage to a regulated output, comprising:

a power stage to generate a power output from the input voltage;

an output filter to filter the power output to generate the regulated output;

an output sensor to generate a digital sense signal to indicate within which of at least three reference ranges the regulated output is included, each of the at least three reference ranges including a plurality of possible values of the regulated output; and

a digital controller, responsive to the digital sense signal, to generate a drive signal to control the power stage.

2. (Original) The output regulator of Claim 1 wherein the power stage has a configuration selected from the group consisting of linear regulators and switching regulators.

3. (Original) The output regulator of Claim 2 wherein the power stage of the switching regulators is a topology selected from the group consisting of buck, boost, Cuk, zeta, buck-boost, and sepic.

4. (Original) The output regulator of Claim 1 wherein the digital sense signal represents a difference between a reference voltage and the regulated output.

5. (Original) The output regulator of Claim 2 further comprising a control mode selected from the group consisting of voltage mode and current mode.

6. (Original) The output regulator of Claim 5 wherein the digital controller to generate a duty cycle estimation to estimate the duty cycle of the drive signal.

7. (Original) The output regulator of Claim 6 further comprising a delay line to adjust the duty cycle estimation, the delay line to receive an input pulse signal corresponding to the duty cycle estimation and a select signal.

8. (Original) The output regulator of Claim 7 wherein the delay line includes an interpolator.

9. (Original) The output regulator of Claim 1 wherein the regulated output is selected from the group comprising output voltage and output current.

10. (Original) The output regulator of Claim 1 further comprising an output selector to set a nominal value of the regulated output.

11. (Original) The output regulator of Claim 10 wherein the output selector to generate a reference signal in response to an input, the reference signal to set the nominal value of the regulated output.

12. (Original) The output regulator of Claim 1 wherein the reference ranges are selected from the group consisting of overlapping and consecutive.

Claims 13-23 are cancelled.

24. (Original) A method of generating a regulated output from an input voltage, comprising:

generating a power output from the input voltage;

filtering the power output to generate the regulated output;

generating a digital sense signal to indicate within which of at least three reference ranges the regulated output is included, each of the at least three reference ranges including a plurality of possible values of the regulated output; and

generating a drive signal, in response to the digital sense signal, to control the power stage.

25. (Original) The method of Claim 24 wherein the power stage has a configuration selected from the group consisting of linear regulators and switching regulators.

26. (Original) The method of Claim 25 wherein generating the power output includes using a topology selected from the group consisting of buck, boost, Cuk, zeta, buck-boost, and sepic.

27. (Original) The method of Claim 24 wherein generating the digital sense signal includes determining a difference between a reference voltage and the regulated output.

28. (Original) The method of Claim 25 further comprising a control mode selected from the group consisting of voltage mode and current mode.

29. (Original) The method of Claim 28 wherein generating the drive signal further includes generating a duty cycle estimation to estimate the duty cycle of the drive signal.

30. (Original) The method of Claim 29 wherein generating the duty cycle estimation further includes generating an incremental delay to adjust the duty cycle estimation.

31. (Original) The method of Claim 24 wherein the regulated output is selected from the group comprising output voltage and output current.

32. (Original) The method of Claim 24 further comprising setting a nominal value of the regulated output.

33. (Original) The method of Claim 32 wherein setting the nominal value further includes generating a reference signal in response to an input, the reference signal to set the nominal value of the regulated output.

34. (Original) The method of Claim 24 wherein the reference ranges are selected from the group consisting of overlapping and consecutive.

35. (Previously Presented) An output regulator to convert an input voltage to a regulated output, comprising:

means for generating a power output from the input voltage;

means for filtering the power output to generate the regulated output;

means for generating a digital sense signal to indicate within which of at least three reference ranges the regulated output is included, each of the at least three reference ranges including a plurality of possible values of the regulated output; and

means for generating a drive signal, in response to the digital sense signal, to control the power output generating means.

36. (Previously Presented) The output regulator of Claim 35 wherein the power output generating means has a configuration selected from the group consisting of linear regulators and switching regulators.

37. (Previously Presented) The output regulator of Claim 36 wherein the power output generating means of the switching regulator is a topology selected from the group consisting of buck, boost, Cuk, zeta, buck-boost, and sepic.

38. (Previously Presented) The output regulator of Claim 35 wherein the means for generating the digital sense signal includes means for determining a difference between a reference voltage and the regulated output.

39. (Previously Presented) The output regulator of Claim 36 further comprising a control mode selected from the group consisting of voltage mode and current mode.

40. (Previously Presented) The output regulator of Claim 39 wherein the means for generating the drive signal further includes means for generating a duty cycle estimation to estimate a duty cycle of the drive signal.

41. (Previously Presented) The output regulator of Claim 40 wherein the means for generating the duty cycle estimation further includes means for generating an incremental delay to adjust the duty cycle estimation.

42. (Previously Presented) The output regulator of Claim 35 wherein the regulated output is selected from the group comprising output voltage and output current.

43. (Previously Presented) The output regulator of Claim 35 further comprising means for setting a nominal value of the regulated output.

44. (Previously Presented) The output regulator of Claim 43 wherein the means for setting the nominal value further includes means for generating a reference signal in response to an input, the reference signal to set the nominal value of the regulated output.

45. (Previously Presented) The output regulator of Claim 35 wherein the reference ranges are selected from the group consisting of overlapping and consecutive.

46. (New) The output regulator of Claim 1 wherein the drive signal controls the regulated output such that each of the at least three reference ranges results in a corresponding operating mode.

47. (New) The method of Claim 24 wherein the drive signal controls the regulated output such that each of the at least three reference ranges results in a corresponding operating mode.

48. (New) The output regulator of Claim 35 wherein the drive signal controls the regulated output such that each of the at least three reference ranges results in a corresponding operating mode.

49. (New) The output regulator of Claim 1 wherein each of the at least three reference ranges has an upper limit and a lower limit, wherein a difference between the upper and lower limits of at least one of the at least three reference ranges is different than a difference between upper and lower limits of remaining ones of the at least three reference ranges.

50. (New) The method of Claim 24 wherein each of the at least three reference ranges has an upper limit and a lower limit, wherein a difference between the upper and lower limits of at least one of the at least three reference ranges is different than a difference between upper and lower limits of remaining ones of the at least three reference ranges.

51. (New) The output regulator of Claim 35 wherein each of the at least three reference ranges has an upper limit and a lower limit, wherein a difference between the upper and lower limits of at least one of the at least three reference ranges is different than a difference between upper and lower limits of remaining ones of the at least three reference ranges.

52. (New) An output regulator to convert an input voltage to a regulated output, comprising:

a power stage to generate a power output from the input voltage;

an output filter to filter the power output to generate the regulated output;

an output sensor to generate a digital sense signal to indicate within which of at least three reference ranges the regulated output is included; and

a digital controller, responsive to the digital sense signal, to generate a drive signal to control the power stage, wherein the drive signal controls the regulated output such that each of the at least three reference ranges results in a corresponding operating mode.

53. (New) A method of generating a regulated output from an input voltage, comprising:

generating a power output from the input voltage;

filtering the power output to generate the regulated output;

generating a digital sense signal to indicate within which of at least three reference ranges the regulated output is included; and

generating a drive signal, in response to the digital sense signal, to control the power stage, wherein the drive signal controls the regulated output such that each of the at least three reference ranges results in a corresponding operating mode.

54. (New) An output regulator to convert an input voltage to a regulated output, comprising:

means for generating a power output from the input voltage;

means for filtering the power output to generate the regulated output;

means for generating a digital sense signal to indicate within which of at least three reference ranges the regulated output is included; and

means for generating a drive signal, in response to the digital sense signal, to control the power output generating means, wherein the drive signal controls

the regulated output such that each of the at least three reference ranges results in a corresponding operating mode.